molecular fossils, or biomarkers preserved in billion year old sedimentary rocks and described the environments that were preserved in billion year old sedimentary rocks and described the environments that were different from anything observed later in the earth's history However, many biomarkers and their biological sources remain unknown Environmental genomics, the study of genomes of microorganisms in modern environments without cultivation, may fill the gaps and help us understand Earth's early ecosystem A special session was addressed to both scientists and the general public in which the sequestration of carbon dioxide was debated by scientists and industry representatives

During this conference a particularly large number of contributions dealt in one way or the another, with isotopic variation of stable or radioactive elements The enormous progress in this area has opened up diverse applications of mass spectrometry in completely new fields New geochemical data and modal-driven approaches were the themes of oral and poster presentations Determining reaction rates at the earth's surface, frontiers in the biogeochemistry, compound-specific radiocarbon dating and its application to biogeochemistry, sedimentology, and palaeo-environmental research were broadly covered by oral presentation Experimental techniques for the study of hydrothermal fluids and silicate melts, magmatic differentiation in subduction zone volcanoes and early evolution of life and bio/hydro/atmosphere and chemical and physical weathering of basalt on the Earth, Moon and Mars were the topics covered in the poster session

The conference successfully brought together the international and national Geochemical Societies, young scientists and students face to face with senior scientists and technologists, in interactive sessions It also impressed upon how modern science and technology can address the need and aspiration of scientific community for understanding the latest trends in geochemistry These meetings contributed to an ever closer cooperation between the Geochemical Society and the European Association of Geochemists to foster the formation of a truly international geochemical community

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VOLCANIC VENT IN NAKORA RING COMPLEX OF MALANI IGNEOUS SUITE, NORTHWESTERN INDIA

The rocks exposed in Nakora Ring Complex (NRC) belong to the Neoproterozoic Malani Igneous Suite (MIS) in the Trans-Aravalli Block (TAB) of Indian Shield MIS is the largest (55, 000 km^2) A-type anorogenic acid magmatism in the Peninsular India and owes its origin to hot spot tectonics In the Mandli area (District Pali, Rajasthan) of MIS the occurrence of perlite was first reported by La Touche (1902) and described by him as a volcanic vent It's geochemical characterization was given by Kochhar et al (1988) Since then the present vent is being reported in MIS Identification of the vent is important to elucidate the planetary dynamics NRC consists mainly of acid volcanic rocks besides minor amount of basic rocks and occur in the form of ring structures Recent geological mapping of NRC has brought the presence of a volcanic vent (35 – 40 meter wide & semicircular to elongated shape) amidst the acidic volcanic terrain (Fig 1) at the top of the hill Storm water is filled, in the vent and percolates down as spring through the lava tubes like network (dimension 30 meter length, 5 meter width, 2 meter height) as well as fractures in the rhyolite At the vent the rocks are mainly of rhyolitic nature besides trachytes flows and basic dyke rocks The rhyolites are associated with other acid volcanic products viz, welded tuff, ash, perlite, explosion breccia and agglomerate The rhyolites are in various colors (dark brown, light brown, purple) and show various structures (volcanic flow, volcanic band, tuffaceous, vesicular) All volcanic flows show sharp contact to each other, and show steep angle (30° 60°) dip towards the vent The acid volcanic flows consist essentially of quartz, K feldspar, alkali amphibole and opaques The volcanic flows exposed from bottom to top of the volcanic vent located hill are given in the Table 1

Under the microscope the rhyolite shows flow and perlitic textures It consists of phenocrysts of K- feldspar, quartz, arfvedsonite in a quartzo-feldspathic groundmass Fine grained, black, brown color opaques (hematite & magnetite) are scattered in the groundmass The trachyte also shows same textural and mineralogical characters but appears less vitreous Riebeckite is also observed in the groundmass It is fine grained, needle shape blue color paleochoric (X – light blue, Y blue, Z Dark blue) and shows

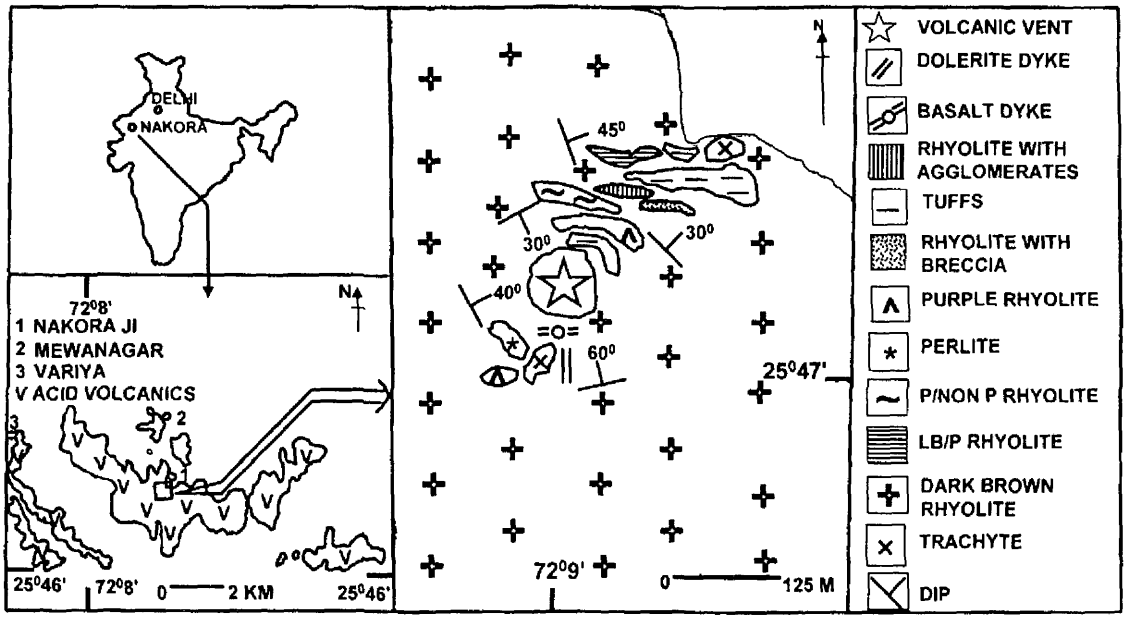

Fig.1. Geological sketch map of the volcanic vent hill of Nakoia Ring Complex (NRC) P / Non P Rhyolite = Porphyritic / Non Porphyritic rhyolite, LB / P Rhyolite = Light Brown / Porphyritic rhyolite

extinction angle X ^ C 3°-5° The tuffs are micio to cryptocrystalline in nature with flow bands and consist of quaitz and alkali feldspar The basalt dyke shows ophitic and subophitic texture It consists of labradorite and augite as essential minerals The dolerite dyke rock consists of untwinned plagioclase feldspar (labradorite) and augite.

The Mandli volcanic vent (Kochhar et al 1988) is 20 m high and composed of various volcanic products from bottom to top of the hill viz rhyolite, 2 bands of agglomerate, volcanic breccia, perlite, tuff and perlite They have mentioned that the low soda content in the perlite of Mandli as compared to the normal felsic volcanic lavas

Table 1. Volcanic Flows (1 to 6 is the order of younging) of the volcanic vent hill of Nakora

Flow no	Rock type	Rock descriptions briefly	Thickness (in metres)
1	Trachyte	Blue in color with orthoclase phenocryst	7
	Tuff	Fine grained, yellow in color	2
2	Dark brown rhyolite	Vesicles in few number with few mm size	50
	Light brown rhyolite	Vesicles in few number with few mm size	40
	Porphyritic rhyolite	Brown color with orthoclase porphyries	30
	Dark brown rhyolite	Size and number of vesicles increases	40
	Tuff	Fine grained, yellow in colour	2
	Agglomerate	Rounded to elongated, 6-10 cm diameter	1
	Volcanic breccia	Angular fragments 3-9 cm of orthoclase	1
3	Porphyritic rhyolite	Brown in color with orthoclase phenocryst	35
	Nonporphyritic rhyolite	Light brown color, fine grained	25
	Purple rhyolite	With amygdaloids / vugs filled by quartz	25
	Tuff	Fine grained, yellow in colour	1
4	Dark brown rhyolite	Vesicles with large number, 1-2 cm size	35
	Perlite	Light green color, shreds, glass, orthoclase	20
	Tuff	Fine grained yellow in colour	1
5	Trachyte	Blue color with orthoclase phenocryst	15
6	Purple rhyolite	Lava channel / tubes, vugs	25
	Dark brown rhyolite	Vesicles with increased size and number	40
	Basaltic dyke	Greenish brown fine grained, no vesicles	2
	Dolerite dyke	Dark brown, medium grained plagiofeldspar	4

due to their chemical changes involved during hydration and devitrification of the lava The occurrence of perlite is rare in Precambrain rocks because of the antiquity since glass tends to be metastable and devitrify Occurrence of elongated or semicircular depression with steep slope at the top of the hill with volcanic flow products at Nakora is promoted to identify this as volcanic vent The Nakora volcanic vent is located along the Luni rift Luni rift (Narayan Das et al 1978) is an important tectonic lineament in the TAB which is related to major crustal dislocation of the continental rift type (Bailey, 1974) It is likely that the major fractures acted as a channel way for the magma extrusions and intrusions The recent geological field investigations in NRC have noticed that the trend of the Luni rift at Nakora takes sudden 'U' turn from west to south direction This indicates the Nakora volcanic vent is perhaps related to the rift dynamics and advocates a relationship between tectonism and volcanism It also suggests that the Luni rift served as channel for magma rising to the surface as flow at Nakora Similar type of volcanic vent related to rift are also reported in Ethiopia and Turkey respectively (Korme et al 1997, Dhont et al 1998, Toprak 1998) The steep dipping nature of the volcanic flow in the study area generally promoted by long lived lava propagation (Polacci and Papale, 1999) This present study promises to invoke to identify more central volcanic eruption system in the volcanic terrains of MIS

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VOLCANICS OF THE CENTRAL INDIAN OCEAN BASIN

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Extended Abstract

- Volcanism is a dominant process in the oceans and is directly related, amongst others, to the morpho-tectonic features, creation of new oceanic crust, crustal plate movements, formation of new rock types, ore mineral formation and hydrothermal activities Volcanic activity in the oceans is generally of two types: (1) central type

Gist of the lecture delivered on 27 December 2006 at the Geological Society of India, Bangalore